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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/683,861	02/22/2002	Robert Otillar	06730.0016.CPUS00	2418

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EXAMINER
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LUDLOW, JAN M

ART UNIT	PAPER NUMBER
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1743

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/01/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/683,861	<b>Applicant(s)</b> OTILLAR ET AL.	
	<b>Examiner</b> Jan M. Ludlow	<b>Art Unit</b> 1743	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-78 is/are pending in the application.  
     4a) Of the above claim(s) 1-58, 74, 75 and 77 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 59-73, 76 and 78 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/14/05, 2/13/06</u> . | 6) <input type="checkbox"/> Other: ____.  |

Art Unit: 1743

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 12, 2005 has been entered.

2. Claims 35-41, 46-58, 74-75 and 77 are additionally withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on November 7, 2006.

3. Claim 69 is objected to because of the following informalities: In line 3, "the" should be inserted before "force" for proper antecedence. Appropriate correction is required.

4. Claims 59-73, 76, 78 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

With respect to claim 59, there is no teaching that the number of attracted particles is "discrete and predetermined." Note that there is no indication of what "discrete" is intended to mean within the context of this application, and if the number were predetermined (also not disclosed as filed), why would you have to measure it?

Art Unit: 1743

There is also no support for "wherein the magnitude of the transduced force is substantially altered by the presence of the uniform field". A search of the corresponding Pre-Grant Publication 2003/0012693 reveals only the following statement concerning a uniform field:

[0145] In some embodiments, forces can be advantageously increased or altered by coordinating external elements or fields in conjunction with elements on the primary substrate. For example two substrates comprising force transduction elements may be placed opposing each other creating dynamically controlled fields between them. For example, two opposing and aligned magnetic coils may be used to create a jointly controlled field. Such a jointly controlled field can be, for example, similar to one as seen between two classical magnets aligned with an interposing gap. By dynamically operating such a field one can, for example, create a controllable dynamic field for selectively attracting or repelling particles including vertically as well as horizontally. For example, one can balance a particle between two elements, or attract or repel a particle from one element for another. For example, one can pass a particle between opposing elements, somewhat similar to passing a particle between two adjacent elements. Decreasing the attractive force of one coil while increasing the attractive force of the second coil can be helpful in this regard, as can repelling with one field while attracting with the other. One of ordinary skill will appreciate these teachings can be applied to other force transduction elements, for example opposing electrodes (e.g. plates) creating an electric field. In addition to dynamic elements, one can advantageously use static or permanent magnetic fields. For example, a uniform magnetic field from a permanent magnet plate below the substrate, e.g. a plate that is large when compared with the total area of invention, can be used to create a substantially uniform magnetic field that increases the force on or between magnetic particles, or magnetic particles and elements of a device of the invention. Permanent magnets, such as rare earth magnets, may be formed in sheets or laminates for placement or inclusion as desired. Depending on factors including element configurations, sizes, distances, field strengths, particles sizes and compositions, etc., field strengths of between 0.01 gauss and 500 mT, or higher or lower can be achieved.

1. The amendment filed November 12, 2006 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as explained above.

Art Unit: 1743

Applicant is required to cancel the new matter in the reply to this Office Action.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 39-41, 46-58, 74-75, 77, are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhou in view of Burden.

6. Zhou teaches a spatially addressable magnetic bead array method (abstract and elsewhere).

7. Zhou fails to teach detection of the number of magnetic particles at each site.

Burdon teaches a method of moving fluid through a microfluidic device including a cavity 204 surrounded by coil 202 for detecting inductance of magnetic particles entering the cavity (col. 19, line 46 – col. 20, line 30, esp. line 26, Figure 4). Individually actuated electromagnets may be used to pump fluid (col. 26, line 50–col. 28, line 50).

8. It would have been obvious to detect the number of particles at each site in the device of Zhou in order to monitor fluid flow in a microfluidic device as taught by Burden.

9. Applicant's arguments filed September 12, 2005 have been fully considered but they are not persuasive.

Applicant argues that the concept of “number of attracted particles is discrete and predetermined” is supported because in embodiments where a known particle is moved or localized, the particle is predetermined and discrete, but this concept seems to the examiner different from what the claim states. That is, the claim does not state that a predetermined particle is localized. Further, the examiner notes that a “discrete” number is a whole number. Is that what applicant is trying to claim—that the particles are fully attracted, i.e., no half particles are present or no particles are half-way localized? Where is that in the specification? It is also not clear to the examiner whether this language is required for patentability or should simply be deleted.

Note that while Zhou teaches magnetic cores 26 to strengthen the electromagnetic fields, the cores do not provide a “uniform magnetic field ... that

Art Unit: 1743

encompasses the specific locations..." in that each core provides an individual field, not an encompassing field. Further, in the embodiment where an apparently uniform magnetic field is applied above the chip to remove beads, no transducing elements are activated: After the immobilization of ligand molecules on the chip surfaces is complete, the magnetic microbeads 56 may be removed from the chip by additional magnetic forces above the chip surface or by fluidic wash (FIG. 18).

Note that Bamdad (2002/0086443) teaches individually addressable magnets for attracting particles and detecting the particles, but does not teach the instant uniform magnetic field.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jan M. Ludlow whose telephone number is (571) 272-1260. The examiner can normally be reached on Monday-Thursday, 11:30 am - 8:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1743

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jan M. Ludlow  
Primary Examiner  
Art Unit 1743

Jml

February 4, 2007